

ABSTRACT OF THE DISCLOSURE

A chuck for a plasma processor comprises a temperature-controlled base, a thermal insulator, a flat support, and a heater. The thermal insulator has a thermal conductivity of less than about 1W/mK and is disposed on top of the base. The flat support holds a workpiece and is disposed on top of the thermal insulator. A heater is embedded within the flat support. A thermal conductor ensures thermal contact between the flat support and the workpiece. The heater has several heating elements that form several heating zones. The power of each heating element can be controlled independently. A method for controlling the temperature across a workpiece profile having multiple zones provides a base maintained at a constant temperature. The constant temperature is being held below the temperature of the workpiece. The workpiece is held during processing against a top face of a workpiece support in a reactor chamber. A heater disposed below the workpiece heats multiple zones of the workpiece to control the spatial temperature distribution across the surface of the workpiece.